

**REMARKS**

After the claim amendments, Claims 36-40 and 41-43 are pending in the Subject Application and have been rejected.

**REJECTIONS**

In the Office Action, the Examiner rejects claims 36-40, 42, and 43 under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 6,613,468 issued to Simpkins ("Simpkins") in view of JP 2000-294256 filed by Taruya et al. ("Taruya").

Applicant has amended independent claim 36 to include the limitation that the claimed solid oxide fuel cell ("SOFC") comprises an interconnect providing a current pathway from the anode, the interconnect consisting essentially of a ferritic stainless steel consisting essentially of the claimed concentration ranges. The transitional phrase consisting essentially of does not allow the interconnect to include a coating since this would effect the basic and novel features of the invention. The amendment is supported by the specification as filed. Though the specification does not explicitly state the interconnect consists essentially of the ferritic stainless steel, one skilled in the art would know from reading the specification as filed that the claimed ferritic stainless steel has the advantage that it may be used directly in a solid oxide fuel cell. The Manual for Patent Examining Procedure states that such an amendment does not present new matter.

**By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing new matter. In re Reynolds, 443 F.2d 384, 170 USPQ 94 (CCPA 1971); In re Smythe, 480 F.2d 1376, 178 USPQ 279 (CCPA 1973).**

Therefore, Applicants respectfully submit that the claim amendment indicating that the interconnect consists essentially of a ferritic stainless steel as claimed does not add new matter to the claimed invention.

In order to analyze whether the amended claim is obvious, the MPEP states that there are three basic criteria that must be met to result a *prima facie* case of obviousness in United States patent law. First, there must be some suggestion or motivation, either in the references or in the knowledge generally available in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all of the claim limitations. See Manual of Patent Examining Procedure ("MPEP") § 2143. Applicants respectfully submit that a *prima facie* case of obviousness may not be made on the amended claims by the combination of references cited in the Office Action, for at least the reasons that there would be no reasonable expectation of success and a combination of the references does not teach all of the claim limitations.

Applicant respectfully submits that the claims as amended in this response are patentable over the cited references. Applicant has previously provided information that indicates that one skilled in the art would not look to the materials of construction of a fuel cell that operates at 80°C (the polymer type fuel cell of Taruya) for a fuel that operates at approximately 800 to 1000°C (the SOFC of Simpkins and the present application.).

In the Office Action, the Examiner states that Simpkins teaches a SOFC comprising an interconnect. The Examiner is not, however, considering Simpkins as a whole. The interconnect of Simpkins is electrically conductive and may comprise a ferritic stainless steel material (6:46-67). However, the cited section of Simpkins more specifically states that "[a]lso, metals, such as ferritic stainless steels, nickel, chrome, aluminum alloys, may be coated with LSC or strontium-doped lanthanum manganite (LSM) to achieve the same desired properties." See Simpkins 6:60-67. Simpkins discloses use of *coated* ferritic stainless steels that may be used as interconnects in SOFC, thereby teaching away from the interconnects of the present claimed invention.

In this regard, based upon the teachings of Simpkins and Taruya there would be no reasonable expectation of success to use the interconnect consisting essentially of an ferritic stainless steel in a solid oxide fuel cell and a combination of the references does not teach all of the claim limitations. One skilled in the fuel cell art would not be motivated to combine the disclosures of Simpkins and Taruya due to the significant differences between the Polymer Electrolyte Membrane ("PEM") fuel cells of Taruya and the SOFC's of Simpkins. These differences are described in the previous Response to Office Action filed on November 16, 2005 and are not repeated in this Response.

It, however, bears repeating that the disclosure of Taruya teaches that components for one type of fuel cell are not capable of being used in a different type of fuel cell and actually teaches away from the use of the disclosed ferritic stainless steel separators other fuel cells. Taruya teaches that "[w]ith each of the aforementioned types of fuel cells, in cases when we think about the individual constituent materials of items that are referred to by the common name of 'fuel cell,' *it is necessary for them to be batched as completely different things.*" Taruya at [0005] (emphasis added). This is because the operating conditions within the fuel cell are completely different for each fuel cell type. Accordingly, "it is not possible to consider the application of materials used in commercialized phosphoric acid-type fuel cells and fused carbonate-type fuel cells in the constituent material of a solid polymer-type fuel cell." Taruya at [0006].

Thus, Taruya teaches that there would be no reasonable expectation of success in using components designed for use in one type of fuel cell in other types of fuel cells. Accordingly, Applicant submits that one skilled in the art, in reading the disclosures of Simpkins and Taruya would not be motivated to use the disclosed ferritic stainless steel separator for a PEM fuel cell in an SOFC.

Further, neither Taruya nor Simpkins does not disclose a ferritic stainless steel that meets the limitation in the amended claims that  $0.5 \leq (\%Nb + \%Ti + \frac{1}{2}(\%Ta)) \leq 1$  in either the broad descriptions of the alloys or in the alloys of Table 1. Taruya teaches that it is generally not desirable to increase the amounts of the Ti and Nb in the disclosed ferritic stainless steels beyond that

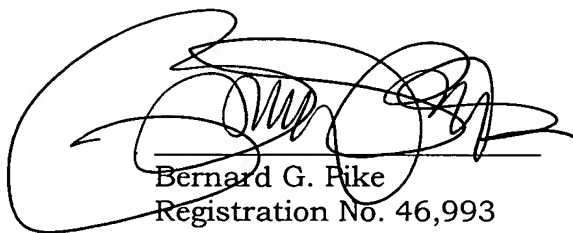
specified ranges and thus Applicant submits that Taruya actually teaches away from using an amount of Ti, Nb, and Ta that would satisfy the equation set forth in claim 36. Consequently, one skilled in the art in reading the disclosure of Taruya would not be motivated to formulate a ferritic stainless steel for use as a separator in any type of fuel cell wherein the ferritic stainless steel contained an amount of at least one of Ti, Nb, and Ta as set forth in amended claim 36.

Consequently, Applicant respectfully submits that Simpkin in view of Taruya neither anticipates nor renders obvious claim 36 or any of the claims that depend therefrom, and respectfully requests that the Examiner reconsider the patentability of the pending claims.

**CONCLUSION**

Applicants believe that they have fully addressed each basis for rejection under § 103(a). Reconsideration of the claims of the subject application and issuance of a Notice of Allowability is respectfully requested. Should the Examiner have any remaining concerns, he is requested to contact the undersigned at the telephone number below so that those concerns may be addressed without the necessity for issuing an additional Office Action.

Respectfully submitted,



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